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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/981,221	10/16/2001	Malcom D. Purbrick	81721HEC	5592

7590 05/04/2004

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EXAMINER


SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/981,221	Applicant(s) PURBRICK ET AL. 	
	Examiner Callie E. Shosho	Art Unit 1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.  
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 12-15 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☒ Claim(s) 15 is/are allowed.  
 6) ☒ Claim(s) 1-4, 8, 9, 13 and 14 is/are rejected.  
 7) ☒ Claim(s) 5-7, 12 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 2/19/04.

**Claim Rejections - 35 USC § 102**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-4, 8-9, and 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda et al. (U.S. 5,213,873).

The rejection is adequately set forth in paragraph 3 of the office action mailed 12/9/03 and is incorporated here by reference.

**Response to Arguments**

4. Applicants' arguments with respect to Mukoyoshi et al. (U.S. 6,187,430) have been fully considered but they are moot in view of the discontinuation of the use of this reference against the present claims.

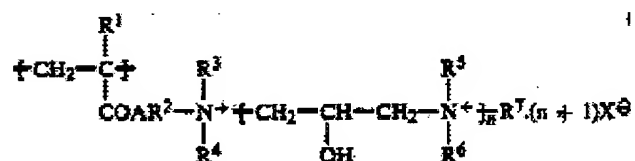
5. Applicants' arguments filed 2/19/04 have been fully considered but, with the exception of arguments relating to Mukoyoshi et al., they are not persuasive.

Specifically, applicants argue that there is no teaching in Yasuda et al. that the silica is crosslinked with the cationic polymeric material. Rather, applicants argue that the positively

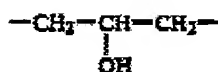
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charged cationic polymeric material associates with the negatively charged surfaces of the silica particles.

However, it is noted that the cationic polymer of Yasuda et al. is of the formula:



where R<sup>2</sup> is of the formula:



Thus, it appears that the cationic polymer has two functional groups that will react with the hydroxyl groups on the silica surface.

As noted on page 4 of the present specification, the crosslinking agent is defined as a molecule having at least two functional group capable of reacting with -AlOH or -SiOH sites on the inorganic oxide. Given that the cationic polymer of Yasuda et al. comprises two functional groups capable of reacting with the -SiOH groups on the surface of the silica, it appears that the cationic polymer of Yasuda et al. does function as crosslinking agent for the silica. It is noted that the crosslinking agent utilized in the present invention is of the formula: polymer---A---Si(OR)<sub>3</sub> where is R is, for instance, hydrogen and thus, in the present invention, it is the -OH

groups which react with the  $\text{-SiOH}$  groups on the silica. Similarly, it is the examiner's position that it is the  $\text{-OH}$  groups on the cationic polymer of Yasuda et al. that will react with the  $\text{-SiOH}$  groups on the surface of the silica. Thu, it is not clear why applicants argue that no crosslinking occurs between the cationic polymer and silica in Yasuda et al. Clarification is requested.

Applicants point to col.5, lines 66-68 of Yasuda et al., which discloses that the cationic polymer is combined with the surfaces of the fine silica particles. While it is agreed that there is no explicit disclosure of crosslinking in Yasuda et al., it is also noted that the disclosure that the cationic polymer is "combined" with the surface of the silica is broad enough to encompass crosslinking between the cationic polymer and the silica. As described above, it is the examiner's position that given the presence of the functional groups on the cationic polymer, the cationic polymer of Yasuda et al. does crosslink the silica.

**Allowable Subject Matter**

6. Claim 15 is allowable over the "closest" prior art Yasuda et al. (U.S. 5,213,873) given that there is no disclosure in Yasuda et al. of ratio of inorganic oxide to polymeric crosslinking agent of 250:1 to 20:1 as required in claim 15.

7. Claims 5-7 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 5-7 and 12 would be allowable if rewritten in independent form as described above given that there is no disclosure in the "closest" prior art Yasuda et al. (U.S. 5,213,873) (i)

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of polymeric crosslinking agent of the formula polymer—A—Si(OR)<sub>3</sub>, (ii) of polymeric crosslinking agent obtained by partial hydrolysis of protein, (iii) that the functional groups on the crosslinking agent are capable of reacting with hydroxyl groups on inorganic oxide to form Si-O-Al bonds or Si-O-Si bonds, or (iv) of ratio of inorganic oxide to polymeric crosslinking agent of 250:1 to 20:1.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

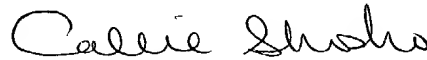
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS  
5/3/04